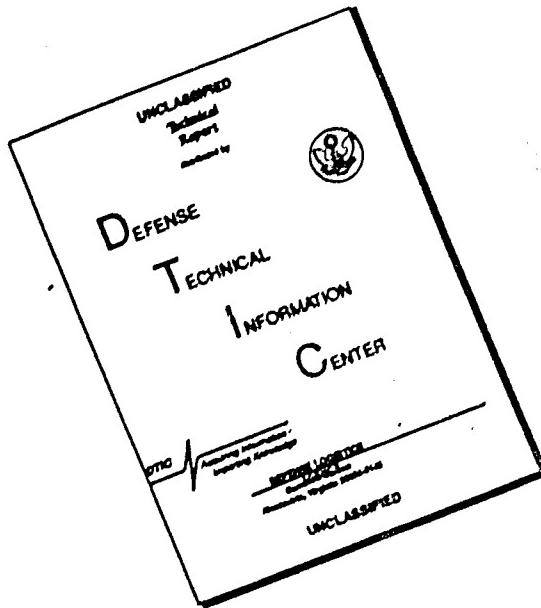


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RESHAPING THE PHILOSOPHY OF SPARE PARTS ACQUISITION: PROJECT PACER PRICE

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ABSTRACT

On June 1st, 1983, a new program called PACER PRICE began operation at the Oklahoma City Air Logistics Center. Staffed by an interdirective group of engineers, manufacturing planners, price analysts and packaging specialists, the program was designed as a thorough and comprehensive review process to determine optimum purchase method and price for every actively-purchased replenishment spare part managed at the Center.

After three months of program operation, approximately 62 percent of the sole-source items have been recommended for competitive purchase, and the prices recommended for these items average about 35 percent below the latest contract prices adjusted for quantity and inflation. But beyond that, a new "philosophy" of spare parts purchase has been formulated and effected as a procedural caveat: All spares should be both purchased competitively and PRICED TO CONFORM WITH COMPETITIVE-MARKET PRICES. The paper focuses on this philosophy, detailing in particular the mathematical models used to simulate competitive prices, and offers suggestions for further research into the competitive market place.

INTRODUCTION

On June 1st, 1983, a new acquisition review program officially began operations at the Oklahoma City Air Logistics Center. A twelve member, interdirective group of personnel had been assembled for the purpose of providing nothing less than a detailed, comprehensive review of every item in the active spare parts inventory at the Center. Based on the results of their investigations, the group would recommend both the optimum method of acquisition as well as the most cost-efficient production quantity and unit price at which each item ought to be purchased. All recommendations were to be input to the J041 System for automatic print on the Daily Procurement History Record on all future buys; recommended changes in the acquisition method were to be forwarded to the Office of the Competition Advocate (CR) for initiation of the appropriate action; the Directorate of Contracting and Manufacturing (PM) could acquire no item reviewed by the group if the unit price obtained from the supplier varied from the recommended amount by more than 25 percent.

Project PACER PRICE was established to meet an urgent need: response to continuing identification of apparent problems in the prices paid by the Air Force for replenishment spares and, by inference those elements in the acquisition

system that had resulted in such prices. Clearly an initiative was needed that would at least equal in scope the amount of attention focused on alleged abuses. Clearly a full-scale investigation of the entire acquisition system was needed to identify and correct those abuses. And equally clearly, this review process needed to move swiftly and decisively to insure that such abuses could not recur. By June 1st the planning for just such a process had been underway for more than a month, a complete manual identifying organizational structure, skill requirements and operating procedures had been drafted and revised three times as the planning process proceeded, and the appropriate initial cadre of personnel had been identified and given office space in an area still being vacated by its previous occupants.

But what could not be clear by June 1st was the potential inherent in the special mission and skills mix of the PACER PRICE staff for the formulation not merely of a sophisticated problem-solving mechanism but of an entirely new operating philosophy that could fundamentally alter the entire acquisition system through a subtle shift in attitude. Yet that is precisely what happened. Through a lengthy process of minutely evaluating every drawing, specification, technical order, material and labor standard, price negotiation memorandum and previous purchase document associated with each item selected for review, in addition to the actual item itself, this group of engineers, manufacturing planners, price analysts and packaging specialists developed a set of operating procedures designed to "fix" the system simply by maximizing the practical mechanisms it already contained to achieve the goals it had always espoused. Very simply, the key was competition. Competitive pricing as well as competitive acquisition. Competition not as the exception to the rule but as the rule itself.

The July 29th revision of the operation plan was the first to set forth the concept in the form of operating "precepts" that were to guide all aspects of the review procedure: "All replenishment acquisition should take place in a competitive market environment," and "All replenishment items should be purchased at competitive market prices." Simple statements on the face of it, statements with which few people could disagree. But when the implications of these statements are examined in detail, when the impact they can have on the total acquisition system is evaluated in terms of the changes they would demand, they are neither simple nor easy precepts to adopt within the framework of the purchasing process as it now exists. The magnitude of the apparent spare

parts acquisition problem, or, more accurately, the magnitude of the PRECEPTION of a problem makes it imperative, however, that at the very least some consideration be given to this new constellation of attitudinal approach and procedural system.

This paper is an attempt to "explain" the PACER PRICE program not so much as a nuts-and-bolts review process but as the practical arm of the total philosophical system, to evaluate the results of the review process in terms of their linkage to the system, and to demonstrate how these results reflect the potential for positive systems change inherent in the PACER PRICE initiative. As such, the paper will be divided into two major sections, "Competitive Acquisition" and "Competitive Pricing," each of which will focus on the particular internal logic system within that part of the philosophy, how this logic system shapes operating procedures, and how these operating procedures yield the desired results in terms both of the logic system itself and of the total acquisition system.

It is neither possible, given publication-space constraints, nor essential that PACER PRICE operating procedures be described at any length in this paper. For maximum clarity in the discussion that follows, however, Figure 1 provides a flow chart of the total PACER PRICE review system.

I. COMPETITIVE ACQUISITION

The Defense Acquisition Regulation (DAR--formerly Armed Services Procurement Regulation) is quite clear in describing the importance of competition in Department of Defense acquisition. Consider paragraph 1-300.2, for example: "All procurement, whether by formal advertising or by negotiation, shall be made on a competitive basis to the maximum practicable extent." [1] Given even the fairly significant number of factors that can legitimately limit competition within the purview of the DAR, the fact that only 28 percent of the total number of spare parts managed at Oklahoma City are estimated to be capable of competitive purchase as of this writing (August 31st, 1983) seems reasonable cause for suspicion as to whether the acquisition system is indeed fostering competition "to the maximum practicable extent."

The fundamental question answered by the PACER PRICE engineering staff is therefore, "What is required to enable purchase of this item in a competitive market environment?" The basic assumption is that, by their very nature, the large majority of Air Force spare parts could be produced by more than one manufacturer and thus purchased from more than one manufacturer. It is the responsibility of the engineers to explore all factors contributing to existing source restrictions and to make a detailed recommendation as to how these factors can be

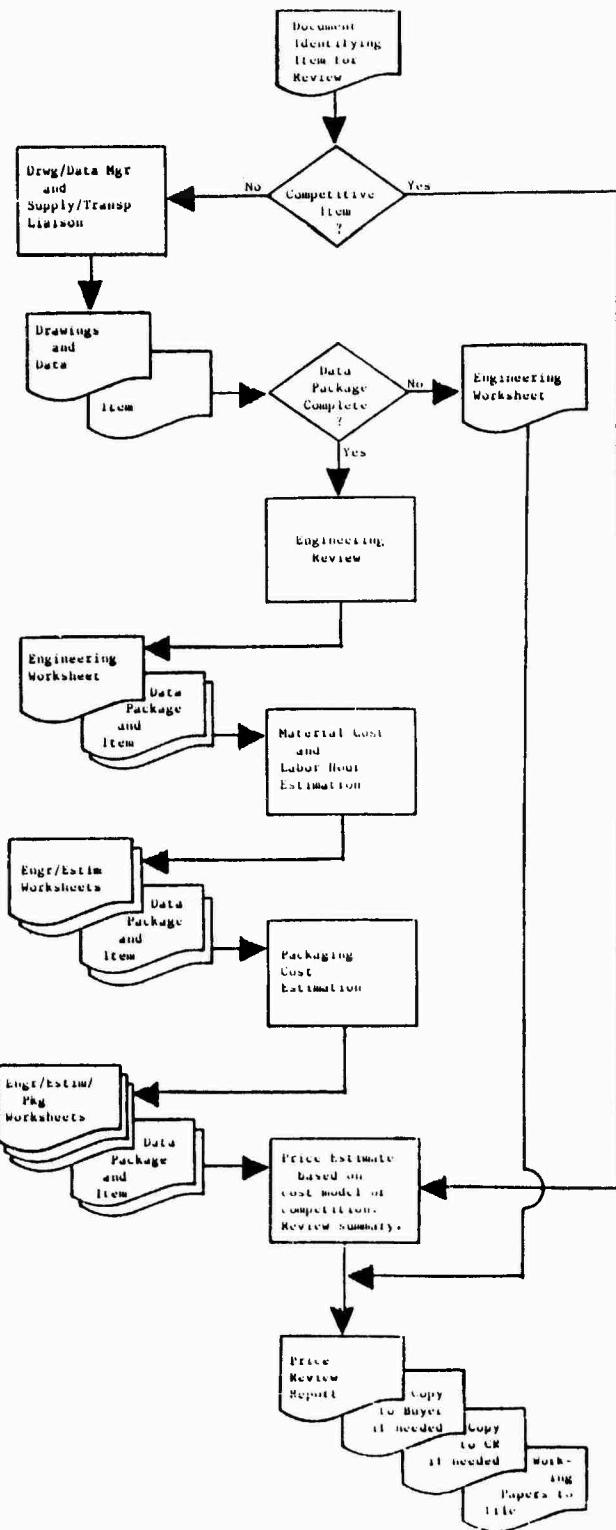


Figure 1
The PACER PRICE Review Process

eliminated. Any factors that cannot be eliminated must be fully documented before source-restriction is accepted. The number and scope of these factors have been considerably reduced and lie primarily in the areas of stringent quality and manufacturing control requirements and of production technologies that are not commonly available. The result: as of this writing, with nearly one percent of the total estimated item population having been reviewed, approximately 62 percent of all items previously restricted to sole-source acquisition have now been recommended for competitive procurement. Comparing this statistic with the current status of the spare parts inventory as mentioned above, it is safe to say that competition has indeed become the rule rather than the exception in PACER PRICE review.

To explore the practical mandate of the philosophy in more detail, the internal logic of competitive acquisition dictates a chain of decision-making processes that will ultimately result in an item being capable of production by more than one manufacturer. Perhaps the most important factor in this constellation is the availability of a complete set of manufacturing drawings and requisite support data. In order for an item to be made by more than one manufacturer, the "instructions" for its manufacture must be available to more than one manufacturer. And for this condition to prevail the Government must not only have in its possession a complete set of the instructions, but the legal rights to their use as well. Thus, the first part of the PACER PRICE engineering worksheet is dedicated to describing the state of the current data package and a precise delineation of any information that might be missing. Due to the complexity of the matter, the question of rights to data usage has not yet been fully explored. Part of the problem is simply determining which of the drawings now in possession of the Logistics Center are actually of a proprietary nature. Many of the drawings reviewed by PACER PRICE engineers that are stamped with the proprietary legend are in fact not proprietary (the drawings associated with the B-52 aircraft being a case in point). The Office of the Competition Advocate has begun communication on a total-inventory basis with the major suppliers of replenishment spares regarding the rights to usage of the data the Government now possesses, but it is too early in the life of the program to offer any tangible results. With regard to acquisition of additional data, the Engineering Data Section (MMEDD) at Oklahoma City routinely orders those drawings which it does not now possess for items coming under PACER PRICE review. But here again this policy has not yet proven a success.

Whatever the outcome of these efforts, one thing is certain: the size of the data repository is bound to increase. And with increased size must come a more readily accessible system

of data usage to both the PACER PRICE staff and acquisition personnel in general. Current problems associated with effective acquisition and management of Air Force data have been detailed in a recent report to the Air Force Management Analysis Group (AFMAG) by a research group working under contract with the Air Force Business Research Management Center. [2] The situation is a cause of some concern. The proposed realignment of the Office of the Competition Advocate to include the PACER PRICE program, MMEDD, and the Replenishment Parts Breakout Program is expected to give impetus to a positive change in this area. And another promising factor is the recent development of computer hardware and software that allows for the electronic digitization, storage and transmission of drawings and data, a development which appears to be the answer to the most immediate problem of data file space requirements as well as the longer-range question of data indexing and retrieval systems.

A second factor affecting competitive capability is the very design and manufacturing requirements of the item itself. Obviously, given even the most complete and readily available set of drawings and data, an item may still not lend itself to competitive acquisition if the requirements are so narrowly defined as to limit production to only one source. Yet equally obvious, the form, fit and function requirements of some parts must be so defined--sometimes even source-directed--owing to the criticality of the item. It is thus the task of the PACER PRICE engineers to determine the optimum set of design specifications and manufacturing requirements that will secure proper item functioning at the same time as it assures production by the largest number of manufacturers possible.

Some practical considerations aiding achievement of the later objective: it is safe to say that only a very few components of any new weapons system are truly "new." Most items are simply refinements of earlier items serving a like function. Even the greatest technological advancements never affect every component part in a new weapons system. In all likelihood, a certain number of parts not undergoing technological improvement or significant system design changes could be "borrowed" from existing systems. This is particularly true for the simpler "nuts-and-bolts" type items--the items, it will be remembered, that have received the brunt of media attention. For this reason, PACER PRICE engineers are tasked with investigation of the potential use of substitute or interchangeable parts for every item they review.

The PACER PRICE staff has been in a continual process of identifying and obtaining all resources that will aid the engineer in making this determination. Perhaps the most fortuitous circumstance is the existence of the AFLC's Cataloguing and Standardization Office

~~and the possibility of remote access to the Defense Integrated Data System (DIDS). A request for interchangeability investigation has been prepared for PACER PRICE use in those cases when the engineer cannot reach a satisfactory determination through use of existing resources, and planning is underway for terminal linkage with the CASO computer as a means of facilitating the substitute/interchangeability search.~~

After identification of a substitute or interchangeable part, logic dictates that the engineer then give special attention to the potential use of alternative (less expensive or more readily available) materials and manufacturing processes. Must a bolt be made of titanium when high-grade stainless steel would serve just as well? Must an item undergo six heat-treats when three would suffice? These are just some of the examples of the questions that are raised in the course of engineering review. They must be answered with any eye to both the realities of current production technologies, as well as to the functional requirements to the item. But the determination to use alternative materials or manufacturing processes can be a factor positively affecting both the competitive position and the price of an item.

The summary consideration in the total constellation of factors affecting competitive acquisition is, of course, determination of the proper Acquisition Method/Suffix Codes (AMC/AMSC). This consideration is integrally linked with data availability and item design considerations. The AMC/AMSC is, in terms of the new philosophy, both the connecting link and focal point in determining the practical success of the dual concepts of competitive acquisition and competitive pricing. It at once summarizes the potential for multiple-source pricing. Very simply put: the larger the number of suppliers, the greater the number of price and delivery proposals to choose from, hence the greater likelihood that the market place will yield the optimum price and purchase opportunity. But this is not what makes the PACER PRICE initiative new or elevates its operational approach to the status of a philosophy. The need for maximum competition has been the cornerstone of purchasing philosophy since time immemorial; the recent creation of the Office of the Competition Advocate and issuance of a new DAR Supplement on the Replenishment Parts Breakout Program [3] merely reaffirm the importance of this need. And the use of AMC/AMSC represents nothing more nor less than a simple, effective means of communication between those functions determining competitive status and those actually making the buy.

What is new about the PACER PRICE philosophy is rather the attitude toward the AMC/AMSC and its use. An AMC/AMSC assigned when a new

system was taken into the inventory is not necessarily valid three or five or ten or sometimes twenty years later. Manufacturing technologies constantly change; new manufacturers set up shop and open their doors to Government business. The presence of a restrictive AMC/AMSC is regarded not as an indication that the item cannot be competitively purchased but rather as a challenge to the engineer to explore more fully and correct if necessary an obsolete obstacle to multiple-source purchasing wherever possible. A restrictive AMC/AMSC is not the last word in the argument but the first step in resuming the argument with increased thoroughness and vigor.

To restate this approach in terms of the internal logic of the competitive philosophy and thus broaden discussion to its impact on the acquisition system in general: if it is the goal of the PACER PRICE program, the Air Force Logistics Command, and the Air Force in general to purchase ALL replenishment spares competitively where possible, then a restrictive AMC/AMSC must be an indication that for whatever reason this goal is not being met, and the appropriateness of that AMC/AMSC must de rigueur be questioned by all personnel involved in the acquisition system. It is the obligation of any functional unit responsible for AMC/AMSC assignment that source restrictions be applied only when absolutely necessary. It is the obligation of the contracting officer, buyer, and item manager to challenge and investigate all restrictive AMC/AMSCs. It is the obligation of all personnel to forward any information affecting the status of an AMC/AMSC to the appropriate unit of responsibility. In order to meet this objective, some training of cognizant personnel will in all likelihood be needed. This training must include a thorough description of the AMC/AMSC system and what each of the various codes mean. The expansion of CR, carrying with it a realignment of both authority and procedures concerning AMC/AMSC assignment is a significant step toward implementing the new philosophy.

Before discussion of the competitive-purchase philosophy closes, however, and by way of summarizing the factors impinging on its practical implementation, some consideration must be given to the causal starting point for many of the obstacles impeding such implementation: the provisioning process. For it is precisely during the spare-parts provisioning stage of new-systems acquisition that the crucial decisions are made regarding source restriction, competitive potential, and the acquisition of manufacturing data and the rights to its use--decisions that will affect the acquisition of each item in the system from the time of the provisioning conference, through all successive buys, until the item is selected for PACER PRICE review.

~~It is, hopefully, self-evident that the same sort of attitude toward source restriction as~~

described above must be maintained by all Government participants in a provisioning conference. It is self-evident that the addition of each new component part to the inventory creates an entire series of conditions that automatically increases the administrative burden of managing and purchasing that part ~~that will be alleviated if the item is interchangeable with some other item or can be borrowed from another system inventory.~~ And it is also self-evident that decisions as to purchase of data will effect the acquisition posture throughout the life of the item. Precisely for this complex of reasons, the PACER PRICE operating plan calls for program involvement in the acquisition process beginning with provisioning. Just exactly how this is to be done continues to be an area of study. But the facts remain: decisions made at provisioning conferences have a direct and lasting impact on the competitive posture of the spare parts inventory; the nature of those decisions will determine the scope of all future PACER PRICE review efforts; the successful implementation of the competitive-purchase philosophy will be greatly furthered or severely hampered through these same decisions.

II. COMPETITIVE PRICING

The second concept in the dual PACER PRICE approach, the idea that all spare parts, REGARDLESS OF WHETHER OR NOT THEY ARE PURCHASED COMPETITIVELY, should be purchased at competitive market prices, is at once a more dramatic shift in philosophical outlook, a more complete reversal of previous methodologies, and hence a far more difficult concept to accept and adopt than is the notion of competitive acquisition. To this writer's knowledge, the current system of cost-based pricing has never been challenged, whereas the goal of competitive acquisition has been a part of the conceptual framework since Government purchasing began. Yet the philosophy of competitive pricing must be an equal partner with competitive acquisition in the total-system philosophy; it is just as important in effecting positive change in the current acquisition system; it is just as viable an operating procedure.

To consider the internal logic of the concept first, if it is agreed that the optimum method of purchase is in a competitive market environment then the price for an item purchased in such an environment must be the optimum price. (Hence the current acceptance of competitively-set prices in the current acquisition system without the need for further justification.) And if the cost-based system of pricing items yields prices that appear to be unrepresentative of the actual worth of an item, then some other system must be used to arrive at a price, and the most logical alternative appears to be the one system that is by definition regarded

as producing optimum results: competitive market pricing. If it is not possible to purchase all items competitively, however, then some method must be found to estimate the price that the competitive market place would generate.

The problem with all of this, of course, is how to devise a system that will provide such an estimate in the absence of actual competitive purchase. The solution proved to be monetization on the basis of those factors conditioning manufacture of an item that are either quantifiably definitive owing to the design of the item or common to all manufacturers at a relatively consistent magnitude. In other words, to estimate competitive prices, use industry-wide average costs and rates. This is being done in a systematic, consistent and comparatively reliable fashion by the PACER PRICE staff through the use of mathematical "Rate Application Models" (RAMs). To date two RAMs have been created and implemented, and a third is still in the planning stage. Choice of appropriate RAM depends on the availability or absence of data packages and/or items.

RAM 1, the original and most basic of the models, takes as its starting point the estimate of material type, material cost at current market prices, type of labor required, and the number of labor hours required of each type, as provided by the PACER PRICE Material Cost/Labor Hour Estimators. This estimate is the result of an examination of the data package and actual item, and the application of appropriate material and labor standards. To the labor-hour estimate the Market Price Analyst applies the appropriate direct labor rate taken from the U.S. Department of Labor, Bureau of Labor Statistics summations of employment and earnings data by Standard Industrial Classification (SIC) grouping[4], thus completing the direct cost portion of the estimate.

The remainder of the total price estimate consists of manufacturing labor overhead, other indirect costs, profit and facilities capital cost of money. Estimation of these costs was considerably more difficult to quantify in terms of industry-wide experience, given the wide diversity of indirect-expense estimating structure currently extant among the community of Government suppliers. While it was recognized that each of these systems has its own particular merit in accurately representing the overhead-pool structure of the particular supplier which developed and uses it, it was also recognized that this close linkage between system and supplier was the principal obstacle to adaptation of any one system to total industry-wide experience. It was further reasoned that a price-estimating system tied to a particular organization tends to perpetuate and emphasize corporate structure as a means for establishing cost, when the true determinant should be the costs associated with actual

production of an item. In other words, the indirect-expense portion of the PACER PRICE model is generalized as opposed to one-manufacturer-specific, linked to manufacturing process, not corporate structure.

To achieve this end, the PACER PRICE estimating and price analysis staff identified twenty clearly distinct manufacturing processes that, as of this writing, appear to be the total constellation of elements required in the manufacture of the inventory of spare parts managed at Oklahoma City. These processes are listed in Figure 2 below under one of four categories of relative balance between machine and labor intensive nature of the process. To date, every item reviewed by PACER PRICE at this Center requires one or more of these processes in its production, and no other processes have been identified as factors.

I. MACHINE INTENSIVE	II. MACHINE/LABOR INTENSIVE	III. LABOR/MACHINE INTENSIVE	IV. LABOR INTENSIVE
BALANCING	CASTING	ENGINE MACHINING	FABRIC
NUMERICAL CONTROL	FORGING	EXTRUSION	GENERAL MACHINING
	TOOL & DIE	ELECTRONIC ASSY	GLASS & PLASTIC
		FINISHING	HEAT TREAT
		GRINDING	MECHANICAL ASSY
		LAPPING	PAINTING
			PLATING & CLEANING
			SHEET METAL
			WELDING
			WOOD MILL
			ZYGO & X-RAY INSPECTION

Figure 2

Manufacturing Process by Category

It was further reasoned that the relative mix of machine/labor weighting associated with each manufacturing process type would have some effect on the indirect costs associated with that type, and that the indirect-expense portion of the model could therefore be derived on this basis. This assumption proved true. Through an ongoing process of directed sampling of pricing cases and continual testing of the model against actual market place prices, the PACER PRICE staff in fact did find that the greater the machine-intensiveness of a process, the higher the number of dollars required for overhead-allotment. Figure 3 lists the percentages of indirect dollars so allotted by manufacturing process type.

CATEGORY	I	II	III	IV
MANUFACTURING OVERHEAD	34.3%	23.1%	18.9%	11.2%
OTHER INDIRECT COSTS	36.7%	33.2%	21.3%	14.0%
PROFIT	12.3%	12.8%	13.0%	13.0%
CAS-414	2.1%	1.8%	1.5%	1.2%

Figure 3

Indirect Expense Rates by Category

That percentage allotted to profit increases slightly as manufacturing processes become more labor-intensive, while all the other indirect cost factors decrease, as Figure 3 shows, is directly attributable to the fact that the PACER PRICE staff has incorporated the Weighted Guidelines Profit/Fee Objective (DD Form 1547, 1 January 1980) methodology for establishing profit as part of the model. The increase in direct labor costs associated with labor-intensive processes has the effect of increasing the relative monetary size of the Weighted Guidelines manufacturing labor cost element, while increasing the risk factor as well, people presumably being more difficult to control and therefore representing a higher risk than machines. The relative magnitude of the cost of capital rate similarly reflects the greater capital investment associated with machine-intensive processes.

Unfortunately, either a complete data package or an example of the item or both are not always available to the PACER PRICE review team, and detailed estimates of material cost and labor hour type and hours cannot be made. Yet in many cases, owing to the urgency of the situation surrounding particular items, an estimate needs to be made before copies of the data or the item can be obtained from sources outside the normal feed mechanisms. A second Rate Application Model (RAM 2) was therefore created to fill this need. It can be used in any situation in which the previous contract price, quantity and date of award are known, and when the PACER PRICE estimator can provide information as to the probable types of manufacturing process required and the relative mix.

RAM 2 relies on a little-recognized but extremely useful peculiarity inherent in both cost-based systems of price estimation and mathematical models used to estimate price in general. That is, due to the requirement for consistency in estimating costs required by the Government's Cost Accounting Standards

(CAS), the relative magnitude of the cost elements used to generate price will remain fairly stable from one estimate to the next. It can be statistically demonstrated, for example, that one particular contractor's estimating system will consistently yield total direct costs that remain at an approximately 69/31 percent mix of material and labor in price estimates for certain of the aircraft replenishment spare parts they sell to the Air Force. The various indirect cost components will likewise account for a relatively consistent percentage of total price. The internal dynamics of the PACER PRICE model conform to this same consistency in magnitude for the component cost elements they generate. Total direct costs remain consistently at about 19 percent of the total price, for example, with the remaining 81 percent indirect cost component subdividing into relatively fixed percentage plateaux.

RAM 2 serves, therefore, as a kind of translation model, enabling the price analyst to ascertain the magnitude of direct costs associated with any contract price, depending on supplier, then provide a market-price estimate based on adjusting these direct costs to industry-wide experience and completing the total package in accordance with the PACER PRICE overhead structure as related to the manufacturing-process labor mix provided by the estimators. Adjustments of any differences between the cost-based and market-based prices in the area of appropriate manufacturing-process category are made first. Then adjustments required by differences in quantity or length of time between contract award and PACER PRICE review are effected by means of Production Quantity Adjustment Factors (PQAFs) and Economic Change Adjustment Factors (ECAFs) tied directly to manufacturing-process category as shown in Figure 4.

CATEGORY	I	II	III	IV
ECONOMIC CHANGE ADJUSTMENT FACTOR	3.161	3.165	2.994	2.977
PRODUCTION QUANTITY ADJUSTMENT FACTOR	.95%	.96%	.92%	.84%
DIRECT MATERIAL SHARE	27%	24%	24%	21%
DIRECT LABOR SHARE	8%	13%	14%	17%
MANUFACTURING HOURLY RATE	12.81	11.48	11.35	10.82

Figure 4

RAM 2 Adjustment Factors

Development of the final Rate Application Model (RAM 3) is expected both to aid in a more precise determination of direct costs without full-scale review by the PACER PRICE estimators and to move market-price estimating capabilities to the stage of development in which items not yet in the inventory but still in the design or provisioning phase can be assigned a realistic market place price. RAM 3 will take as its basis for estimating direct costs three factors that are even now in

current use or readily identifiable: total physical dimensions of the item (the "cube" in packaging-requirement estimations); type of material required; and the end-use or function of the item. The cube will determine amount of material which, together with material type and access to material standards will establish direct material cost. Item function will derive determination of correct manufacturing process, as well as number of hours required by category, also based on standards. The remaining market-price build-up will transpire simply on the basis of the indirect cost factors listed in Figure 3 for RAM 1.

As of the writing of this paper, both RAM 1 and RAM 2 were in regular use by the PACER PRICE staff at Oklahoma City, with RAM 3 still in the planning stages. All three RAMs, it should be emphasized, are designed to produce the same result: an estimate of competitive market price. Regular, routine testing of RAMs 1 and 2 have verified that they are indeed producing this result: comparison of prices generated by either of the models with actual prices paid for competitively purchased items indicates that the estimated prices fall about at mid-point in the competitive range. Comparison of the prices paid in actual sole-source situations with those estimated by PACER PRICE, on the other hand, provide a clear indication of the importance of competitive purchasing to obtain the best possible price: to date, sole-source prices are running on the average 35 percent higher than the estimated market prices, for the same quantity of units. If all sole-source items reviewed thus far by PACER PRICE could be purchased at the competitive market-prices generated by the estimating models, substantial savings could be realized.

Beyond the obvious result of identifying potential savings, the practical procedural aspects of the philosophy of competitive market-pricing also hold promise of positively affecting the acquisition system in at least two other areas. For one thing, the data generated in PACER PRICE review could give a buyer or contracting officer detailed information on the manufacture of an item that could be of considerable value in the negotiation of a sole-source item, assuming that all available avenues for purchasing the item in a competitive market had been exhausted. Although the concept of the competitive-market price, that it must be treated as a total entity, must be kept in mind in using detailed component elements of that price, comparison of PACER PRICE estimates of these elements with those actually proposed by small or medium-sized manufacturers has demonstrated the accuracy of these estimates. They would at least provide contracting personnel with tools not now available, particularly in small-dollar procurements falling below the threshold for Certified Cost and Pricing data.

The second important implication lies in the area of automated access to the data. Current plans for the PACER PRICE program call for complete automation of all mathematical models and the data bases required to support them, and include on-line access to several different data systems. The objective is the complete automation of the PACER PRICE review mechanism, an objective that is within easy reach, given the current state-of-the-art in computer hardware and software design, and the existing data bases. Remote linkage would allow a buyer or contracting office to obtain a detailed market-price analysis simply by inputting a National Stock Number (NSN) or part number. The present manpower-intensive nature of the program would thus be alleviated, with the PACER PRICE staff scaled down to a small staff dedicated to routine systems testing and maintenance and to further research in market trends.

All of this is not to suggest that the current cost-based price analysis system either could or should be completely replaced by the market-based system. Such a suggestion is simply not possible, given the imperative to continue purchasing certain items on a sole-source basis. The importance of the competitive pricing philosophy does need to be investigated more fully, however, as a means of cross-checking the cost-based system and providing additional negotiating leverage.

CONCLUSION

This paper has been an attempt to explore the practical implications of what has been termed a "new philosophy" of "competitive acquisition" and "competitive pricing." We might just as well have spoken about a more "business-like" approach to acquisition in the sense of studying current buying practices in private industry to learn how they might be adopted to Government use. Among the PACER PRICE staff at Oklahoma City, as the review process began generating definitive information on the factors required to change the competitive status of an item and estimate a competitive market price, questions continued to arise as to what was actually happening in that market place we were studying. Were the occasional aberrations in price that the model generated, especially when Production Quantity Adjustment Factors were involved, an indication that purchase in a competitive environment, from suppliers in continuous production of the item, somehow negated the effects of order quantity on material cost or labor "learning?" Or were these aberrations symptomatic of some other factor affecting price that was in some way tied to order quantity? If so, did we need to launch a full-scale exploration into the nature of the factors affecting price, factors that a market-based system derived from a cost-based system could not be incorporated into the

transition? Were the models working by accident?

These are all questions that deserve further investigation. The entire subject of current market conditions and trends that impact market pricing deserves thorough study, if the results of the PACER PRICE initiative are to be understood clearly, and the philosophy implemented to maximum benefit in the acquisition system. The recommended establishment of a Business Management Strategy Council at each of the Air Logistics Centers, with the function of further market research and investigation of acquisitions in which the PACER PRICE recommended price cannot be met, must be viewed as a positive step toward this end. With an AFMAG-projected minimum return of 10 to 1 on investment expected to be realized as a result of the PACER PRICE initiative in its later stages of implementation along, the prospect for even further perfecting the system through comprehensive market research must be viewed as extremely attractive. The "new philosophy" is a practical reality, well-planned implementation, a functional imperative.

REFERENCES

- [1] United States Department of Defense, ARMED SERVICES PROCUREMENT REGULATION, THE 1976 EDITION, Washington DC, 1976, revised by DEFENSE ACQUISITION CIRCULAR #76-45, 30 June 1983, p. 1:21.
- [2] McCann, Thomas, "Increasing Spares Competition within AFLC: Some Impediments and Suggestions," (Contract No. F33615-82-C-5095, sponsored by the Air Force Business Research Management Center) Dayton OH, 1983.
- [3] United States Department of Defense, DEFENSE ACQUISITION REGULATION SUPPLEMENT NO. 6, DoD Replenishment Parts Breakout Program, Washington DC, 1 June 1983.
- [4] United States Department of Labor, Bureau of Labor Statistics, Supplement to Employment and Earnings, Revised Establishment Data, Washington DC, various dates.

NOTE:

THE VIEWS EXPRESSED IN THIS PAPER, TOGETHER WITH MUCH OF THE INFORMATION IT CONTAINS, ARE THE RESULT OF THE AUTHOR'S PERSONAL EXPERIENCE IN HELPING TO ESTABLISH THE PACER PRICE PROGRAM AT THE OKLAHOMA CITY AIR LOGISTICS CENTER AND SHOULD NOT BE CONSIDERED A STATEMENT OF AIR FORCE POLICY.
